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ABSTRACT

This guide is intended to assist vocational education administrators and teachers in developing and implementing competency-based vocational education (CBVE) programs. Section I discusses the purposes of this guide, which include administrator use in planning staff development programs and teacher educator use as a reference for students in preservice and inservice programs. Section II defines CBVE. The major characteristics of a CBVE program are discussed. Section III provides information on CBVE syllabus development. The components of a syllabus are listed, and other elements that might be included in a syllabus are suggested. Section IV identifies the components of a CBVE lesson plan. Optional elements are suggested. Appendixes, amounting to one-half of the guide, include a glossary of CBVE terminology, a listing of CBVE resources and bibliography, sample course syllabi and lesson plans, and program evaluation checklist for competency-based education. (YLB)

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Implementing Competency-Based Vocational
Education in South Carolina

Department of Education
South Carolina

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**South Carolina Department of Education: An Equal Opportunity Agency
Columbia, South Carolina 29201**

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FOREWORD

The challenge for vocational educators to remain responsive to the needs of students, business and industry, and to be accountable for what takes place in vocational education programs has prompted an increased emphasis on competency-based vocational education. If we are to make the shift in vocational education programs toward competency-based instruction, vocational teachers must understand, accept, and teach the major concepts involved. Competency-based vocational education was mandated in the Program Standards adopted by the State Board of Education in December, 1980 and in the Education Improvement Act of 1984. The purpose of this guide is to provide the basic guidelines for planning competency-based instruction in vocational education programs. The guide can also be used as a resource in updating and/or modifying the curriculum for vocational education programs.

If you are interested in additional information or assistance with implementing competency-based instruction, please contact appropriate staff members in the Program Planning and Development Section, Office of Vocational Education, 904 Rutledge Building, 1429 Senate Street, Columbia, South Carolina 29201.

Dr. Anne L. Matthews, Chief Supervisor
Program Planning and Development

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PURPOSE OF THE COMPETENCY-BASED VOCATIONAL EDUCATION STATE GUIDE

Implementing competency-based vocational education will require dedication on the part of the teachers, administrators and students. This guide should make the task of developing and implementing a competency-based vocational program easier. Careful planning of time and resources and reorientation of efforts will be necessary.

The approach to developing and implementing a competency-based vocational program will vary from program to program. Several factors are responsible for this variation; among them are (1) the needs and concerns of the vocational educator, (2) the nature of the current program and facilities, (3) the availability of support services and resources, (4) the characteristics of the students who enter the program, and (5) the legal and administrative requirements that affect the program. All of these factors interact in their effects on vocational educators and pose unique problems for each educator to solve.

Because most vocational educators already possess many of the skills necessary to develop and implement a competency-based program this guide's purpose is to assist administrators and teachers in using those skills to develop and implement competency-based vocational programs. This guide provides educators with (1) information on the basic components necessary to implement competency-based vocational education, (2) examples of competency-based syllabi and lesson plans that serve as possible models for their programs and (3) sources for obtaining a variety of resources that can be used in developing or implementing a competency-based program or that can help teachers develop additional skills and knowledge in competency-based vocational education.

Responsibility for implementing competency-based vocational education does not rest with teachers alone. Teacher educators, school administrators, and a variety of support personnel also share the responsibility. Although vocational teachers will find this guide useful, teacher educators and school administrators will also find it beneficial and vital in training teachers for implementing competency-based vocational education.

The following are major uses for which the guide is intended:

1. The criteria that administrators must develop for meeting the competency-based vocational education mandate under the Education Improvement Act can be based on information found in this guide. Additionally, they can use the guide in planning staff-development programs.
2. Teachers can use this guide as a reference to identify the components necessary for implementing their competency-based programs.
3. Teacher educators can use the guide in the same ways as teachers: as a resource in identifying the components of competency-based vocational education. Teacher educators can also use this guide as a reference for their students in preservice courses and for in-service programs.

DEFINING COMPETENCY-BASED VOCATIONAL EDUCATION

Competency-based vocational education is an instructional process aimed at improving the teaching-learning process. By definition, competency-based vocational education refers to occupational programs in which required competencies and standards are specified in advance of instruction. A competency is defined as the ability (including knowledges, skills, and/or attitudes) to perform a specific task successfully to meet a specified standard. A competency statement contains an action verb and a noun (i.e., fill out a job application form).

The basic intent of competency-based vocational education is to aid student mastery of competencies needed for success on-the-job. Several aspects of competency-based vocational education distinguish it from traditional instruction. These include:

1. Analysis of the subject matter content is in terms of competencies;
2. Diagnosis of pre-instructional student behaviors (pre-testing);
3. Increased use of individualized instructional strategies;
4. Use of criterion-referenced measurement instruments for assessing tasks.

A competency-based instructional system is based on the concept that no two people learn the same way at the same rate. **To the students, competency-based vocational education means:**

1. Being given credit for what they already know;
2. Being able to identify what they need to know or do;
3. Being able to proceed at their own rate within program guidelines;
4. Having some choice in how they learn-individually, on a one-to-one basis, in small groups, in large groups, or through audiovisual means;
5. Accepting more responsibility for their own learning;
6. Being given more responsibility in decision making and time management;
7. Evaluating their own progress;
8. Being able to move more freely in the classroom and/or the shop;
9. Having a competency-based curriculum which requires demonstrating mastery learning at the level designated by workers in the occupation;
10. Competing against pre-set standards and not other students;
11. Being graded on achievement of standards or criteria for each segment of the curriculum.

For the vocational educator, competency-based vocational education means:

1. Being a manager of learning, a consultant rather than a "giver-of-all-information," a facilitator of the learning process;
2. Being a motivator, concentrating on instilling confidence in the learner, providing rewards for jobs well done, and on serving as a model of desired work habits, attitudes, and competence in the occupational field;
3. Having the responsibility of advising a group of students and being a part in designing each student's personalized program of study;
4. Being responsible and accountable, along with the student, for the curriculum; and
5. Being the key element in the teaching-learning process.

Characteristics of a Competency-Based Vocational Education Program

A competency-based vocational education program can be identified by examining its characteristics. The following paragraphs explain the major characteristics of a competency-based vocational education program. It should be pointed out that a program probably would not have all of these characteristics, but may have modifications of them.

1. Course content is based upon actual worker's tasks which are measurable. Competencies to be mastered by the students are determined in advance of instruction through a job or task analysis. The job analysis focuses upon the job duties and tasks involved in an occupation. The purpose of a job analysis is to find out what workers are doing on the job.
2. Student performance objectives are specified in advance of instruction. Job competencies are expressed in terms of student performance objectives. Performance objectives focus on student outcomes or what the individual will be able to do upon successful completion of instruction. A performance objective consists of three components: (1) a description of the conditions and limitations under which the student is expected to perform a task; (2) a student's performance or behavior stated in observable and measurable terms; and (3) a precise description of the acceptable standard or criterion. Students are made aware of the objectives they must master.
3. Students achievement is based upon demonstrated competence. Mastery of skills is of prime importance in competency-based vocational education. Emphasis is placed on the development of minimum levels of competency by students, thus promoting the acquisition of marketable job skills. However, opportunities should be provided for and students encouraged to develop their abilities beyond the minimum standard.
4. Instruction is individualized. Opportunity is provided for differences among students with respect to the objectives they pursue, the mode or methods of instruction, and the materials used for learning. Instruction can be self-paced, with the student having some choice in the selection of objectives and learning activities under the guidance of the teacher. Learning activities may involve the use of student competency sheets, learning activity packages, group projects, independent study, on-the-job training, and simulations.

5. The student and teacher are more accountable for mastery of competencies. The individual knows what he or she is expected to master and accepts the responsibility, along with the teacher, for meeting the identified standards. In doing so, the student is encouraged to assume more responsibility for the instructional process since the completion of the program is dependent on the mastery of specified competencies.
6. Learning is guided by feedback. Feedback plays an important part in a competency-based vocational education program. Frequent and immediate feedback is provided to the student. The student's progress is monitored closely in relation to the stated objectives in order to provide reinforcement and motivation for learning and to diagnose any student deficiencies so that remedial instruction can be provided.
7. Learning time is flexible. Time may vary among students to accomplish the objectives. Thus, slower students are permitted to take enough time and faster ones can proceed to advanced units.
8. An open entry, open exit program is possible. The concept of an open entry, open exit program is possible with competency-based vocational education. When a student has mastered the required competencies, the student should receive credit for the work done and move to advanced competencies. Many entry and exit points may exist throughout the training program, reflecting different job and skill levels within an occupation. The concept of open entry, open exit is difficult to handle administratively due to the present scheduling in today's schools.
9. Criterion-referenced measurement is employed to evaluate the mastery of the performance objectives. A criterion-referenced test or measure is one that is constructed to yield measurements which are directly interpretable in terms of specified standards. A student is evaluated according to predetermined standards rather than by a comparison with other students. A criterion-referenced test is competency oriented; that is, it measures if an individual can perform a job task or work sample under controlled conditions. This type of test usually, but not always, involves the manipulation of equipment, materials, and objects.
10. The teacher is a manager and facilitator of instruction. The teacher's and student's role in a competency-based vocational education program are different from those in a traditional program. The teacher is more of a manager, facilitator and motivator in the instructional process. The teacher and student actually become more involved with the teaching-learning process.

The characteristics discussed above should be used in developing the necessary components of competency-based vocational education.

COMPETENCY-BASED VOCATIONAL EDUCATION SYLLABUS DEVELOPMENT

Competency-based vocational education is based on clearly stated competencies related to an occupation. In implementing competency-based vocational education, the competencies to be mastered by the student should be based on specific tasks done by workers on the job. The task within an occupational field must be identified. From the task that are identified, competencies are established and thus form the basis from which a course syllabus is written. Competencies have been identified for all vocational courses and are available through the Office of Vocational Education.

A course syllabus is a document which describes the course and its content. A course syllabus provides for standardization of content when the same course is taught by different instructors. Without having a basis for content, each has the potential to be entirely different in scope. A syllabus lays out the basic content of the course, allows each teacher to choose learning activities, instructional material and resources to fit the competency-based teaching methods required to meet the needs of students in mastering a competency.

The components of a syllabus are:

1. **Name and Number of the Course** - An example might be Automotive Mechanics I, or Automotive Mechanics II. It is better if the name is as descriptive of the course as possible.
2. **Credit** - The Carnegie units given upon successful completion of the course.
3. **Prerequisite** - Other courses or enabling skills required for enrolling in the course.
4. **Narrative Description of the Course** - One or two paragraphs which describe the course in terms of what will be covered, what the student will do, method of teaching, and what the student will learn or be able to do upon successfully completing the course.
5. **Competencies** - A listing of the advisory committee approved competencies the student will have mastered upon successful completion of the course. The list shall be based on those competencies that an employer will be looking for when hiring a worker.
6. **Course Outline (Scope and Sequence)** - An outline detailing the sequence in which the content is to be taught and the depth or level of detail of the content in each unit. A list of the competencies by itself is not a course outline. A course outline will be in greater depth in terms of content. The competencies list major skill or knowledge areas, while the course outline includes all required teaching content to acquire that skill or knowledge. A well planned outline will indicate time constraints as well.
7. **Textbooks, Reference Books, and Resources** - A listing of the class textbooks, and reference books, or other instructional materials the students will be expected to use during the course.

8. **Method of Student Evaluation** - An explanation of how students will be graded and the level of student performance required for completing the course. Evaluation explanation may include the following elements.
 - a. Performance - The percentage of final grade or evaluation determined by student performance.
 - b. Written tests - The percent of final grade to be based on written tests.
 - c. Other Measures - The percent of the final grade determined by other students learning success measures.

In addition a well prepared syllabus may include some of the following:

1. A pre-test used to determine student entry level. One of the characteristics of competency-based vocational education is to give students credit for what they already know.
2. Student syllabus to be explained and given to the student on the first day of class. A student should be able to identify what he/she needs to know or do.
3. Individualized instructional plans and materials designed to allow for individual student differences.
4. A system which allows students to proceed at their own rate within program guidelines.
5. Criterion reference test items keyed to competencies.
6. Provision for students to make some choice in how they learn-individually, on a one-to-one basis, in small groups, in large groups, or through audiovisual means.
7. A method which will allow students to evaluate their own progress. Evaluation should be against preset standards and not against other students.
8. A sequenced listing of course teaching objectives that are required to provide the student with the skill, knowledge, and attitudes required of the job for which training is given.
9. A listing of the most probable overt behavior that will indicate student attitude and a method of measurement in relation to the job for which training is given.
10. Some provision to insure learning is guided by feedback.
11. A standard to indicate learning time is flexible and that learning time is not a grading criteria.
12. An instructional structure that will insure that the teacher is a manager and facilitator of instruction.

There are numerous formats for writing a course syllabus. As long as the essential elements of a syllabus are included, the syllabus may conform to the format specified by local administrators. Sample syllabi are included in Appendix C.

COMPETENCY-BASED VOCATIONAL EDUCATION

LESSON PLAN DEVELOPMENT

Perhaps the most important component of competency-based vocational education is the lesson plan. The plan will help the instructor to visualize the lesson to be taught. The plan assist the instructor in identifying the objective, organizing the strategies, securing needed material and establishing the standards for competence.

The components of a lesson plan are:

1. **UNIT:** Identifies the name of the units of instruction. A unit would contain a group of related competencies.
2. **COMPETENCY:** The identification of a specific task to be performed. This task would relate to a skill, knowledge, and/or attitude needed for on-the-job performance. A competency statement contains an action verb and a noun (i.e., fill out a job application form).
3. **PERFORMANCE OBJECTIVE:** A statement of exactly what the learner must do, indicating an activity that is to be observed and measured. A performance objective contains three bits of information: (1) conditions which describe the situation, limits, supplies, tools, and equipment which the student will have to work with (given what?); (2) behavior which states exactly what observable action the learner must demonstrate (does what?); and (3) standard which describes how much is required or how precise the quality of work must be done (how well?).
4. **INSTRUCTIONAL ACTIVITIES:** A list of methods used to achieve the objective. The activities, required and optional, could include selected readings, lectures, field trips, group discussions, role-play presentation, projects, seminars, media presentations and other activities. Instructional strategies or activities should be written in precise terms and relate to the objective. These activities should be described rather than listed as steps in the completion of a task. Activities can take place in large groups, small groups, or be individualized. Students learn better when there is a variety of activities to choose from. These activities should include both teacher-directed and student performance strategies.
5. **INSTRUCTIONAL MATERIALS REQUIRED:** A listing of those items or materials required to provide the indicated learning experiences. Do not list common items such as pencils, paper, etc.
6. **EVALUATION:** Various testing methods used to determine the success of an instructional process to insure the accurate appraisal of student achievement in relation to the objective. Paper-and pencil tests can be used to determine what a person knows at a particular time. These tests are used to determine how much was learned. However, performance is evaluated by direct observation through the use of performance tests. Student performance can be evaluated by examining a project, product, and/or the process one goes through in performing the competency. Checklists and rating scales can be used to evaluate a student's competence. In most cases, the process is evaluated by a checklist and the product by a rating scale.

In addition a well prepared lesson plan would include some of the following:

1. Enabling objectives required of the student as prerequisite knowledge to the performing of the competency.
2. Lesson content with references for use during preparation for teaching the lesson and to provide additional learning resources.
3. A series of diagnostic questions to determine if the learner is ready for the next enroute learning activity.
4. Activities and individualized instructional material that may be used with the lesson.
5. Supplemental materials such as worksheets or job informational sheets.
6. Test questions used in the evaluation process.

As with course syllabi, there are a variety of lesson plan formats. The selection of a format should meet the needs of the individual instructor but should contain all required components. Sample lesson plans are available in Appendix D.

Summary Statement

Competency-based education is intended to improve the teaching-learning process. It is a means for clarification and structuring expected outcomes so that the design of educational procedures and the evaluation of outcomes may be greatly enhanced.

Competency-based instruction is not the answer to all of education's problems. It is, however, another step in the direction of more effective educational planning which utilizes greater clarity in what is expected in the program and from the student.

APPENDIXES

APPENDIX A

COMPETENCY-BASED VOCATIONAL EDUCATION TERMINOLOGY

ACCOUNTABILITY - The theory that teachers and school systems may be held responsible for actual improvement in pupil achievement and that such improvement is measurable through tests of teacher effectiveness constructed by outside agencies.

ADVISORY COMMITTEE - A group of individuals who can provide the instructor with useful information about his or her occupational area and who can advise the instructor on matters related to the requirements of the occupation or the local job market. The group - usually selected by or with the consent of the instructor - may include employers, supervisors, incumbent workers, former students, or others who are familiar with the requirement of the occupations they represent, current trends in employment, and technological developments.

AFFECTIVE LEARNING - Behavior exhibited by the learner dealing with changes in attitudes, interests, and values and development of appreciation and adequate adjustments.

BEHAVIORAL OBJECTIVE - A statement specifying a performance that a student is expected to do in order to demonstrate that he/she has acquired the knowledge skill, or attitude taught in a learning experience. The performance specified should be observable and measurable.

COGNITIVE LEARNING - Behavior exhibited by the learner dealing with recall and recognition of knowledge and the development of intellectual abilities and skills.

COMBINATION APPROACH - An instructional approach in which students are allowed to move at their own rate, but within specific time frames. The appropriate use of both the group and individualized modes (prescribed, personalized, self directed and independent) promotes effective and efficient instruction.

COMPETENCY - Proficiency in the knowledge and skills required of workers in a particular occupation or occupational specialty; a term used variously by educators to mean essentially program goal, duty, task, or objective. In some cases the terms are synonymous.

COMPETENCY PROFILE - A written record of the knowledge or skills that a student has acquired, as well as the level of proficiency that the student has attained in a specific occupational area.

CONDITION - That part of the performance objective which identifies the environment (instruction, tools, equipment and supplies) in which the learner will perform the task.

COURSE OUTLINE - A list of topics and subtopics that reflect the content of the program. An alternative would be a list of duties and tasks performed on the job. The order of the list may or may not correspond to the order in which tasks are taught.

COURSE SYLLABUS - A written plan which includes name and number of the course, credit, prerequisite, narrative description of the course, competencies, course outline (scope and sequence), supplies, equipment, texts, and references needed by the students and student evaluation. Portions of this plan may be provided to the students.

COVERT BEHAVIORS - The thinking process which precedes overt (observable) behavior in the learner.

CRITERION-REFERENCED MEASURE - A test item based on an objective which assesses how well a student can perform a task in relation to a present standard of proficiency.

CURRICULUM GUIDE - A document that describes suggested content and instructional strategies for a particular program. Usually included are program goals, student objectives, suggested learning experiences, resources, and evaluation procedures. Sometimes included are actual materials that can be duplicated and used by students.

DIAGNOSTIC TEST - A test given to a student during the instructional process to aid in identifying areas of student strengths and weakness relative to a given subject under study.

DELIVERY SYSTEM - The teaching process used to instruct (group, individualized or combined).

DUTY - A distinct grouping of tasks which are related to each other by the nature of the work to be performed.

EFFECTIVE INSTRUCTION - Instructive actions and activities that enable the learner to reach the objective.

EFFICIENT INSTRUCTION - Instructive actions that acquire maximum learning with the minimum amount of time, resources, etc.

ENABLING PERFORMANCE OBJECTIVE - A statement describing knowledge and/or attitudes which are specific prerequisites to the performing of the skill or task. Workers are competent when they can perform a psychomotor task while taking into consideration the mental activity (cognitive and affective) needed to complete the performance.

GROUP APPROACH - The approach to classroom instruction whereby all learners are working on the same task and learning experiences simultaneously.

GUIDED ACTIVITY - Learning activities planned and provided for the learner by the teacher are done under the guidance of the instructor to assure correct or accurate practice of new learning tasks.

INDEPENDENT ACTIVITY - Learning activities planned and provided for the learner by the teacher. They provide practice after student ability has been demonstrated.

INDEPENDENT INSTRUCTION - Objectives and learning activities required to master course competencies are selected by the student.

INDIVIDUALIZED INSTRUCTION - The delivery system which attempts to tailor instruction to the needs and interests of the learner. It may be: prescribed, personalized, self-directed or independent.

INSTRUCTIONAL RESOURCES - Textbooks, workbooks, audio-visual aids and other related items designed to assist in the teaching and learning processes.

INSTRUCTIONAL STRATEGIES - The activities and behaviors planned for and performed by the instructor to promote learning. (Also known as Teaching Activities, Learning Experiences and Learning Activities).

JOB-RELEVANT REQUIREMENTS - These requirements (skills and knowledge) of each occupation which are the bases for instruction.

LEARNING ACTIVITY PACKAGES - Individual self-contained packets of information to facilitate learning. Each Learning Activity Package contains a pre-test, student performance objectives, learning activities, self checks, and a post-test. (Also called learning packages, learning modules, or learning packets).

MANAGEMENT PROCEDURES - The procedures used to keep instructional activities and classroom administration running smoothly. Keeping accurate student records, keeping track of materials, and assigning equipment, supplies, and instructional materials are examples of the tasks for which management procedures are needed.

MEASURABLE - Refers to the capability to evaluate the learners performance based on behavior.

MODULES - A package of materials designed to help student manage their own instruction. A module may focus on some or all of the objectives for a unit of instruction. In addition to stating objectives, a module often includes an instruction and rationale, pre-test and post-test, and actual instructional materials and activities or directions for obtaining and using them.

NORM - REFERENCED TEST - A test used to determine how well a student performs a given task relative to other students.

OBJECTIVE - A statement specifying a performance that a student is expected to do in order to demonstrate that he/she has acquired the knowledge, skill, or attitude taught in a learning experience. The performance specified should be observable and measurable.

OBJECTIVE EVALUATION - Evaluation based on the use of facts without distortion by personal feelings and/or prejudices.

OBJECTIVE TEST - A test that involves the use of facts without distortion by personal feelings and/or prejudices.

OCCUPATIONAL INVENTORY - A duty and task listing that results from an occupational analysis. The inventory lists the tasks performed by workers in an occupation, along with an estimate of the relative amount of time spent on each task.

OVERT BEHAVIORS - Outward behavior of the learner. Overt behavior enables the teacher to evaluate learning.

PERFORMANCE GUIDE - Series of steps arranged in the sequence usually followed which, when completed, should result in the performance of a task.

PERFORMANCE OBJECTIVE - A statement, in observable and measurable terms of what the learner must do. The performance-objective statement includes the task, the conditions under which the task is to be performed, and the standards that performance must meet. (In V-TECS catalogs, performance objectives are exclusively

psychomotor (or skill) objectives; knowledge and attitude objectives are not included.)

PERSONALIZED INSTRUCTION - Objectives are selected by the learner; learning activities are selected by the instructor.

PRESCRIBED INSTRUCTION - Both the objectives and learning activities are predetermined by the instructor.

PRETEST - A test administered prior to instruction in order to determine whether the student has already mastered the skills or knowledge specified in the performance objective(s).

POSTTEST - A test administered after a student has completed the instruction for one or more objectives in order to determine whether the student has mastered the performance objective(s).

PROCESS EVALUATION - An appraisal process designed to determine if a student is progressing satisfactorily through a student's performance on procedures or steps.

PRODUCT EVALUATION - An appraisal process designed to determine the degree of accomplishment or achievement on the part of the student in relation to the performance objective(s) through the rating of the final product of a student's performance.

PROGRAM - A planned sequence of courses, services, or other educational activities designed to meet specific vocational objective(s) so that individuals are prepared to enter an occupation or closely related groups of occupations.

PROGRAMMED INSTRUCTION - An instructional strategy which presents information in planned steps. Instruction can be programmed in such media as printed texts, tapes, films, filmstrips, slides, and computer software.

PSYCHOMOTOR - Behavior exhibited by the learner dealing with the development of a manipulative or motor skill. The physical activities a learner does in performing a skill.

RELEVANT INSTRUCTION - Instruction that is meaningful to the learner and meets current occupational needs. In competency-based vocational education objectives must be job-relevant and learning experiences must be relevant to the task being learned.

SELF-DIRECTED - Objectives are selected by the instructor, learning activities by the student.

SELF-PACING - An arrangement whereby provision is made for individual students to set their own schedule for learning or rate of achievement and to monitor their own progress.

SEQUENCING - The process of arranging tasks to assure an orderly and logical presentation of learning to the learner.

STANDARD - Part of the performance objective. It indicates the level of performance expected of the learner at the completion of the learning activities.

STUDENT FEEDBACK - The function of guided instruction and evaluation (process and product evaluation).

SUBJECTIVE EVALUATION - Evaluation influenced by the evaluator's personal experiences and/or prejudices.

SUBJECT-MATTER UNITS - A unit of instruction built around related principles, concepts, or facts.

SUBJECTIVE TEST - A test, such as an essay test, that is scored on the basis of the scorer's personal judgement of the worth of each answer, rather than by reference to an objective scoring key; often used to designate the traditional type of examination.

TASK - A unit of work activity which constitutes logical and necessary steps in the performance of a duty. A task has a definite beginning and ending point in its accomplishments and generally consists of two or more definite steps.

TASK ANALYSIS - A detailed study of what a worker does in performing a task. A process the teacher must perform in order to identify cognitive and affective learning that is relevant to the task to be learned. The development of V-TECS curriculum guides includes this process in the development of instructional units.

V-TECS - Vocational-Technical Education Consortium of States - An organization working to develop valid catalogs of performance objectives, criterion-referenced measures and performance guides.

V-TECS CURRICULUM GUIDE - Contains the competency-based content and resources needed to deliver the training for that occupation.

APPENDIX B

COMPETENCY BASED VOCATIONAL EDUCATION RESOURCES

CBE: A Humanistic and Realistic Approach to Technical and Occupational Education for the 80's, Robert E. Norton, The National Center for Research in Vocational Education, The Ohio State University, 1960 Kenny Road, Columbus, Ohio 43210.

Competency Based Curriculum Materials, Vocational Education Curriculum Section, Office of Vocational Education, 1237 Gadsden Street, Columbia, South Carolina 29201.

Implementing Competency-Based Education (CBE), AAVIM, American Association for Vocational Instructional Material, 120 Driftmier Engineering Center, University of Georgia, Athens, Georgia 30602.

Implementing Competency-Based Vocational Education: A Resource Guide, Dissemination and Diffusion Section, Bureau of Research, Dissemination and Evaluation, Division of Vocational Education, Department of Education, Knott Building, Tallahassee, Florida 32301.

Self-Instructional Competency-Based Professional Teacher Training Manuals, Urban Oen, OE, Project Director, Illinois CBVE Project, DAVEA Center, 301 North Swift Road, Addison, Illinois 60101.

The Maryland Vocational Curriculum Production Project, Western Maryland Vocational Resource Center, Post Office Box 5448, McMullen Highway, Cresaptown, Maryland 21502.

Vocational Course Competencies, Program Planning and Development Section, Office of Vocational Education, 904 Rutledge Building, Columbia, South Carolina, 29201.

Vocational-Technical Education Consortium of States (V-TECS), Curriculum Publications Clearinghouse, Western Illinois University, 46 Horrabin Hall, Macomb, Illinois 61455.

BIBLIOGRAPHY

Implementing Competency-Based Vocational Education - A Resource Guide, The Center For Studies in Vocational Education, Florida State University, 1983.

What is Competency-Based Vocational Education (CBVE)?, Division of Vocational-Technical Education (DVTE), Maryland State Department of Education, 1978.

APPENDIX C
SAMPLE COURSE SYALLBUS
TRADE AND INDUSTRIAL EDUCATION

COURSE TITLE: Drafting and Design I

COURSE DESCRIPTION:

This course is designed to provide students with an introduction into the communication of ideas through the use of drafting media. Students will develop the basic skills required to perform selected drawing assignments. They will also be exposed to the importance of design as the language of industry.

CREDITS: One

PREREQUISITE: None

COURSE COMPETENCIES: (partial listing included because of space limitations).

Unit A. PREPARING TO DRAW

1. Adjust drafting table using available knobs or levers to achieve maximum comfort and efficiency reducing drafting fatigue.
2. Clean drafting tools using mild liquid soap, water, and towels to minimize smudges on work.
3. Select drafting (media) using knowledge of end product to develop an acceptable drawing.
- ...

Unit J. IDENTIFYING SHOP PROCESS

1. Identify machine operations using an assigned problem to construct plans and specifications that are required to develop a drawing.
2. Construct standard structural shapes using an assigned problem to recognize and apply the correct selections for a job.
3. Identify manufacturing processes using an assigned problem to understand processes required to develop a drawing.
- ...

COURSE OUTLINE: (Scope and Sequence)

I.	The Graphic Language	2 weeks
	A. Type of Drawings	
	B. Principles of Drawings	
II.	Instrumental Drawings	4 weeks
	A. Basic Equipment	
	B. Drafting Rules	
	C. Basic Skills and Techniques	
III.	Lettering	3 weeks
	A. Types of Lettering	
	B. Methods of Lettering	
IV.	Geometric Constructions	4 weeks
	A. Points and Lines	
	B. Polygons	
	C. Arcs	

V.	Occupational Information	1 week
	A. Scientist	
	B. Engineer	
	C. Technician	
	D. Drafters	
VI.	Multiview Projection	5 weeks
	A. Two-View	
	B. Three-View	
VII.	Drawing Reproduction	1 week
	A. Blue Print	
	B. Diazo	
	C. Thermo-Fax	
VIII.	Sectional Views	4 weeks
	A. Full Sections	
	B. Partial Sections	
IX.	Auxiliary View	4 weeks
	A. Primary Auxiliary	
	B. Secondary Auxiliary	
X.	Working Drawings	4 weeks
	A. Detail Drawings	
	B. Revisions	
XI.	Dimensioning	4 weeks
	A. Line Work	
	B. Size	
	C. Locations	
	D. Notes	

INSTRUCTIONAL MATERIALS, SUPPLIES, and EQUIPMENT:

Required Textbooks: Martin, C. Leslie. Design Graphics (2nd ed.), New York: The MacMillan Co., 1968.

Supplemental Textbooks: Field, W.B. Architectural Drawing. New York: McGraw Hill, 1979.

Grant, H.E. Practical Descriptive Geometry New York: McGraw Hill. 1972.

Thomas, T.A. Technical Illustration. New York: McGraw Hill, 1970.

All required student materials and equipment will be supplied by the instructor.

EVALUATION SYSTEM: Students will be graded using the following criteria:

Quizzes	4 @ 10 points	40 Points
Mid and Final Exams	2 @ 100 points	200 Points
Worksheets	6 @ 10 points	60 Points
Drawings	5 @ 40 points	200 Points
Final Project	1 @ 50 points	50 Points
Work Attitudes:		100 Points
1. Participation	2. Cooperation	5. Safety
3. Leadership	6. Responsibility	4. Effort
7. Self Control	8. Attendance	
TOTAL POINTS		650

FINAL GRADE:

A = 90 - 100% =	585 - 650 points
B = 80 - 89% =	520 - 584 points
C = 70 - 79% =	455 - 519 points
D = 60 - 69% =	390 - 454 points
F = 59% or below	389 points or below

SAMPLE COURSE SYLLABUS

MARKETING EDUCATION

COURSE TITLE: Fashion Merchandising

COURSE DESCRIPTION: The course is designed for students in the twelfth grade who are interested in preparing for entry-level jobs in the fashion industry and for such specific higher level jobs as assistant buyer, buyer, merchandising trainee, merchandise manager, fashion model, fashion coordinator, and promotion manager.

CREDITS: 2 units
3 units with cooperative option
Elective course

PREREQUISITES: 12th Grade
Be able to compute fractions, decimals, percents

COURSE COMPETENCIES: (Partial listing included because of space limitations)

Unit A: OVERVIEW OF FASHION INDUSTRY

1. List the principles of fashion.
2. Identify fashion terminology.
3. State the environmental influences on fashion.
4. Identify channels of distribution.
5. Identify distributors for fashion retailing.

Unit B: CAREER DEVELOPMENT

1. Identify a short term and a long term goal.
2. Identify a job application.
3. Identify a personal data sheet or resume.
4. Identify a cover letter.
5. Role play a job interview.

Unit C: PERSONAL DEVELOPMENT

1. Identify facial shapes and proper hair styles.
2. Identify appropriate attire for specific occasions.
3. Identify the types of leadership styles in the work environment.
4. Identify the elements for the communication model.

Unit D: NATURE OF FASHION

1. Identify each stage of the fashion cycle.
2. List accelerating and retarding factors.

Unit E: SELLING

1. List ways to determine customer buying motives.
 2. Identify the types of selling approaches.
 3. Differentiate between product features and benefits.
 4. Identify three techniques for overcoming objections.
- ...

COURSE OUTLINE: (Partial listing included because of space limitations)

Unit I.	OVERVIEW OF FASHION INDUSTRY	4 weeks
	A. Principles of Fashion B. Fashion Terminology C. Environmental influences D. Marketing Theory E. Channels and Institutions F. Bibliography	
Unit II.	CAREER DEVELOPMENT	3 weeks
	A. Career Planning B. Job Application C. Job Interview	
Unit III.	PERSONAL DEVELOPMENT	4 weeks
	A. Body Care B. Skin/Health Care C. Color Coding D. Dress for Success E. Human Relations F. Communications G. Modeling (Personal)	
Unit IV.	NATURE OF FASHION	3 weeks
	A. History B. Theories of Movement C. Designers	
UNIT V.	SALES PROMOTION	8 weeks
	A. Selling B. Cashiering C. Advertising D. Visual Merchandising E. Publicity F. Fashion Show Production ...	

INSTRUCTIONAL MATERIALS, SUPPLIES, and EQUIPMENT:

Required Textbook: Troxell, Mary D and Stone Elaine. Fashion Merchandising, New York: McGraw Hill Book Company, 1981.

Other Materials: Mathisen, Marilyn P. Apparel and Accessories, New York: McGraw Hill Book Company, 1979.

EVALUATION SYSTEM:

Completion of assigned competencies	50%
Unit Test	25%
Exam	25%

APPENDIX D
SAMPLE LESSON PLAN
TRADE AND INDUSTRIAL EDUCATION

COURSE: Electronics I

UNIT: Computer Basics: Base 2 Numbering System

COMPETENCY: Covert four place base two numbers to base ten.

PERFORMANCE OBJECTIVE:

Upon completion of instruction that student will be able to convert four place base 2 numbers to the equivalent base 10 number correctly.

INSTRUCTIONAL ACTIVITIES:

1. Need of base 2 system. Switch has 2 states on and off therefore we are limited to only two digits in the computer world, 0 and 1. (zero & one)
2. Review base 10 system digits 0 to 9
3. Develop place value--draft student input--1000,100,10,1
4. By transfer develop base 2 system
5. Place value of base 2 system 8, 4, 2, 1 Think 8-4-2-1
6. Convert 4 digit base 2 numbers to base 10. Use 8-4-2-1
7. Conduct guided group practice
8. Closure Why use base 2 system?
What digits are used in base 2? (zero and one)
How does base 2 relate to base ten?
9. Use worksheet #5.01.03

INSTRUCTIONAL MATERIALS REQUIRED: Chalk board, Worksheet #5.01.03

EVALUATION: Student will convert the problems on worksheet #5.01.03 to the base ten equivalent values.

=====

(SAMPLE WORKSHEET)

WORKSHEET #5.01.03

Name _____

Convert the following base 2 numbers to their equivalent values in the base ten system.

- | | | | |
|-----------------|-----------------|-----------------|-----------------|
| A. 0101 = _____ | B. 1011 = _____ | C. 1101 = _____ | D. 0010 = _____ |
| E. 0001 = _____ | F. 1010 = _____ | G. 1111 = _____ | H. 0000 = _____ |
| I. 0111 = _____ | J. 0110 = _____ | K. 0011 = _____ | L. 1110 = _____ |
| M. 1001 = _____ | N. 0100 = _____ | O. 1000 = _____ | Q. 1100 = _____ |

SAMPLE LESSON PLAN
MARKETING EDUCATION

COURSE: Fashion Merchandising

UNIT: Merchandising

COMPETENCY: List the steps to take a physical inventory.

PERFORMANCE OBJECTIVE:

Provided an inventory recording form, a calculator, and designated merchandise to inventory, inventory the merchandise. All merchandise must be counted, mathematical computations must be corrected, and all entries must be legible.

INSTRUCTIONAL ACTIVITIES:

1. Define and explain a physical inventory
2. Distribute, discuss and compare various completed inventory forms and explain the purpose of the information needed.
3. List on the board and explain the steps to take a physical inventory.
4. Fill out an inventory form using the overhead projector.
5. Provide blank inventory forms and assign students in groups of two to conduct a physical inventory of the merchandise provided.
6. Check the completed inventory sheets against the one you have previously prepared for accuracy.
7. Have students list the steps to take a physical inventory.

INSTRUCTIONAL MATERIALS REQUIRED

Sample complete inventory forms

Sample blank inventory forms

Calculator, sample merchandise or empty merchandise boxes, overhead projector

EVALUATION

The student will inventory merchandise using a recording form and designated merchandise. All merchandise must be counted, mathematical computations must be correct, and all entries must be legible. The student will list the steps to conduct a physical inventory.

APPENDIX E

PROGRAM EVALUATION CHECKLIST FOR COMPETENCY-BASED VOCATIONAL EDUCATION

The following Program Evaluation Checklist may be used as a self-rating evaluation to determine the extent of conformance to the competency-based vocational education components. After completing the evaluation, this may be used as a basis for improving a program.

		ALWAYS	OFTEN	SOMETIMES	RARELY	NEVER
In your current course or program:						
1.	Students are evaluated and placed at a level of instruction appropriate to their present capabilities.	()	()	()	()	()
2.	Students learn at their own pace.	()	()	()	()	()
3.	Students are provided with, and are able to select from, a variety of learning activities and resources.	()	()	()	()	()
4.	Each student learns skills to meet his/her own needs, rather than learning skills that are assigned to the whole class.	()	()	()	()	()
5.	Students learn from each other.	()	()	()	()	()
6.	Students fully understand prior to instruction what is expected of them.	()	()	()	()	()
7.	Students can work independently and without constant teacher supervision.	()	()	()	()	()
8.	Students are allowed to help plan their own learning activities.	()	()	()	()	()
9.	Performance objectives are used to specify student outcomes.	()	()	()	()	()
10.	The course performance objectives are based on competencies.	()	()	()	()	()
11.	Students know exactly what the minimum level of mastery is for an objective or activity.	()	()	()	()	()
12.	Learning materials are easily accessible to students when they need them.	()	()	()	()	()

- | | | | | | | |
|-----|--|-----|-----|-----|-----|-----|
| 13. | Personnel such as teacher aides, para-professionals, or advanced students are available to help students who experience learning difficulties. | () | () | () | () | () |
| 14. | Available facilities allow for both individual, small-group, and large-group instruction. | () | () | () | () | () |
| 15. | Students are evaluated according to written standards and not how other students are doing in the class. | () | () | () | () | () |
| 16. | Instruction is individualized. | () | () | () | () | () |
| 17. | Students have a record of what competencies they have achieved. | () | () | () | () | () |